

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	13	murray-allen-k.in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/02/05 17:39
L2	205	(polysaccharide or glycoprotein or glycopeptide or carbohydrate) same extract same water same acid same alcohol same precipitate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/02/05 17:33
L3	83	2 and (analyze or analysis)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/02/05 17:29
L4	2	(polysaccharide or glycoprotein or glycopeptide or carbohydrate) same extract same (cold adj water) same (hot adj acid) same alcohol same precipitate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/02/05 17:34
L5	5	1 and alcohol	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/02/05 17:50
L6	5	1 and (alcohol ethanol propanol)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/02/05 17:50

# STN Search

FILE 'CAPLUS' ENTERED AT 18:29:50 ON 05 FEB 2007

L1 1746 (ANAL? OR DETERMIN? OR DETECT?)(S) (EXTRACT? (4A)  
(POLYSACCHARID? OR SUGAR? OR CARBOHYDRAT? OR  
GLYCOPROTEIN?))

L2 19 L1 AND (COLD (2A) WATER)  
D L2 IBIB ABS 1-19

L3 215 L1 AND WATER AND ACID?

L4 9 L3 AND COLD  
D L4 IBIB ABS 1-9

L5 48 (EXTRACT? (4A) (POLYSACCHARID? OR SUGAR? OR  
CARBOHYDRAT? OR GLYCOPROTEIN?)) (S) "COLD WATER"  
D L5 TI 1-48

L6 14 SEA ABB=ON PLU=ON L5 AND ACID?  
D L6 IBIB ABS 1-14

TITLE: Determination of total sugars and of starch in fruit to be pulped

AUTHOR(S): Warcollier, G.; le Moal, Aug.

SOURCE: Chimie et Industrie (Paris) (1932), Special No., 756-60  
CODEN: CHIEAN; ISSN: 0009-4358

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB In cider factories the detns. can be carried out either on the pulped fruit or on the pressed juice. The former is more accurate, but sampling is a serious problem on account of sepn. of juice. Extn. of the sugars is made on a 20-g. sample by repeatedly shaking (in 2 10-g. portions) with 2 cc. basic Pb acetate and water, centrifuging and decanting (at least 6, and preferably 10, such extns. are made), making to 500 cc., inverting a 50-cc. aliquot with 1 cc. concd. HCl at 70-5.degree. for 20 min., cooling, neutralizing with 36.degree. B.acte.e. NaOH, making to 100 cc., filtering and detg. reducing sugars in a 20-cc. aliquot by Bertrand's method. Simple extn. with cold water, without centrifuging, gives low results, even when no correction is made for the vol. of the pulp residue, on account of occlusion of sugars by the Pb ppt., the error being 0.1-0.2% on the wt. of the pulp. When the detn. is carried out directly on the juice, a factor must be used to calc. back to the fruit basis, the factor varying with the sp. gr. of the fruit. The following method is recommended for the detn. of starch: Remove the sugars from 20 g. of pulp by repeated washing and centrifuging with water, transfer to a 100-cc. flask, heat 30 min. at 70-5.degree., add 1.5 cc. of 50% H2SO4, heat 1 hr. at 110.degree., neutralize with 36 drops of 36.degree. B.acte.e. NaOH, add 3 cc. basic Pb

acetate soln., make to 100 cc., filter, add a little  $\text{NaHCO}_3$ , filter, and det. reducing sugars in the filtrate by Bertrand's method. The results are about 0.8-0.9% high, presumably on account of saccharification of non-starch materials (probably part of the cellulose); under the conditions prescribed, no saccharification of pectin occurs. A modification of the method consists in adding 1 cc. of Rapidase to the pulp after extg. sugars in the absence of basic Pb acetate, heating 1 hr. at 70-5.degree., centrifuging and washing repeatedly, and inverting with  $\text{H}_2\text{SO}_4$  and detg. reducing sugars as above. The method gave theoretical results on starch-free pulp to which known amounts of starch were added.

TITLE: The hemicellulose removed during a neutral sulfite semichemical cook of aspen wood  
AUTHOR(S): Quick, Robert H.  
CORPORATE SOURCE: Weyerhaeuser Timber Co., Longview, WA  
SOURCE: Tappi (1956), 39, 357-66  
CODEN: TAPPAP; ISSN: 0039-8241  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable

AB A typical neutral sulfite semichem. cook (NSSC) of aspen wood (*Populus tremuloides*) was carried out 1.5 hrs. at 170.degree. with 12%  $\text{Na}_2\text{SO}_3$  and 5.78%  $\text{NaHCO}_3$  (based on the wood). The hemicelluloses removed from the wood during the cook were studied by removing liquor samples from the digester after 30, 90, 150, and 210 min., hydrolyzing the spent liquor, and detg. the sugars quantitatively by paper chromatography. The results are given in tables. After 0.5 hr. the sugars found in the hydrolyzate are qualitatively the same as those found in the wood hydrolyzate. Over 50% of the total sugars was glucose (I) and over 25% mannose (II). As the cook proceeded the relative amt. of I and II decreased and, at the end of the cook, about 80% of the sugars was xylose (III) and only 4% I and 2% II were present. On the basis of these results NSSC's were carried out at 0.5 hr. (max. temp. 64.degree.), 1.5 hrs. (136.degree.), 2.5 hrs. (171.degree.), and 3.5 hrs. (171.degree.) and gave pulp yields of 95.6%, 88.2, 79.6, and 73.8%, resp. The spent liquors of these cooks were analyzed as before and the hemicelluloses isolated by passing the liquor through an Amberlite IR-120 column, neutralizing the effluent with  $\text{Bu}(\text{OH})_2$  to pH 4.5, centrifuging off the insol. Ba salts, concg. the supernatant soln. in vacuo to 100 cc., centrifuging it again, and pouring the clear soln. into 1.5 l. EtOH. Holocelluloses were prepd. from the pulps and were extd. with 5 and 16% KOH, giving 5% (IV) and 16% hemicellulose (V), resp., and leaving the alkali-resistant cellulose. All the hemicelluloses were hydrolyzed and analyzed for sugars, ash, and uronic anhydride. The degree of polymerization (D.P.) of the hemicelluloses and of some of the alkali-resistant celluloses (VI) was detd., and intrinsic viscosity data were obtained for the hemicelluloses isolated from the spent liquors. No

simple sugars or disaccharides were found in the spent liquors. In the early stage of the cook the chem. compn. of the spent liquor was quite different from that of the hemicelluloses isolated from the wood and pulps but approached them in compn. as the cook proceeded. The rates of removal of the hemicelluloses and lignin were about the same. About 42% of IV, 23% V, and 7% VI, and 43% of the lignin in the wood were removed in a NSSC. This amounted to about 18% of the total carbohydrate material in the wood. An analysis of a cold-water ext. of aspen wood showed the presence of free I, fructose, and traces of sucrose; hydrolysis of the cold-water ext. gave all the sugars found in the wood hydrolyzate in addn. to some fucose, detected by paper chromatography. The D.P. of IV increased slightly with cooking time, whereas that of V decreased. The D.P. of VI increased markedly with cooking time as did the intrinsic viscosity of the hemicelluloses from the spent liquor.

TITLE: Comparison of extraction and hydrolysis methods in the determination of soluble and easily hydrolyzable carbohydrates in feeds from a single sample  
AUTHOR(S): Maksimova, V. P.; Shcherbakova, A. K.  
CORPORATE SOURCE: TsINAO, USSR  
SOURCE: Upr. Kach. Anal. Rab. Agrokhimsluzhbe (1982), 96-103.  
Editor(s): Derzhavin, L. M. Tsentr. Inst. Agrokhim.  
Obsluzhivaniya Sel'sk. Khoz.: Moscow, USSR.  
CODEN: 52KUAJ

DOCUMENT TYPE: Conference

LANGUAGE: Russian

AB Fodder samples were extd. with cold water for 30 min, then with 60.degree. water for 15 min under shaking, and finally with 50.degree. water for 2 min in a blender, to sep. sol sugars. Subsequent hydrolysis of the extn. residue with .alpha.-amylase [9000-90-2] from *Aspergillus oryzae* and glucoamylase [9032-08-0] from *A. awamori* was more specific for starch [9005-25-8] than was digestion by 1% H<sub>2</sub>SO<sub>4</sub> for 5 min. For mass detns. only the acid digestion was used. Sol. sugars in the ext. and hydrolyzate were detd. by colorimetry using the anthrone reagent according to G. Goiter et al. (1974). The results were in agreement with the std. method of Bertrand.

TITLE: Changes in cell-wall polysaccharides of ambarella fruit during juice extraction and clarification

AUTHOR(S): Massiot, P.; Baron, A.; Farhasmane, L.; Parfait, A.  
CORPORATE SOURCE: Stn. Rech. Cidricoles, Biotransform. Fruits Legumes, Inst. Natl. Rech. Agron., Le Rheu, 35650, Fr.  
SOURCE: Sciences des Aliments (1991), 11(3), 477-89  
CODEN: SCALDC; ISSN: 0240-8813  
DOCUMENT TYPE: Journal

LANGUAGE: French

AB *Spondias cytherea* (Anacardiaceae), a tree from tropical countries, gives edible fruit used for making different beverages. The clarification of the juice involves the natural gel of macromols. This study deals with the characterization of cell-wall polysaccharides, notably pectins and hemicelluloses, and their evolution during the extn. and the clarification of the juice. The polysaccharides were extd. from alc.-insol. residues, sequentially with cold water, ammonium oxalate, hot dil. acid, cold dil. alkali and strong alkali. The pectic fractions were purified by ion-exchange chromatog. (DEAE-Trisacryl) and characterized by their sugar compn. and their elution pattern on high pressure gel permeation chromatog. (HPGPC). Pectins and hemicelluloses represent 4.1 and 3.6% of the dry pulp, resp. The pectic polysaccharides from the pulp contain large amts. of galacturonic acids (56-81%) highly esterified and neutral sugars (20-42%), mainly arabinose, galactose and rhamnose. The pectic side chains are branched arabinan. Hemicelluloses are mainly (arabino)xylans and xyloglucans. During extn., two thirds of the protopectin remains in the pomace and 90% of the (sol. pectin) PSE fraction is recovered in the juice. The natural clarification discards only 42% of the pectins of the turbid juice and the remaining polysaccharides are mainly composed of galacturonic acid (82%) and arabinose (11%). The nature of the coagulum is discussed. The distribution of mol. wts. as measured by HPGPC shows that clarification concs. the pectins with high mol. wts. in the coagulum. Hemicelluloses are not selected in the extn.